I claim:

1. A method for determining a condition of an entity comprising:
selecting a set of volatile markers which are characteristic of a condition and which will be found in a gaseous emanation from the entity;
non-invasively detecting these volatile markers in the gaseous emanation from the entity;
processing the detected marker data with an algorithm which intelligently adapts to an individual entity.

2. The method for claim 1 further comprising further processing the detected marker data with a correction algorithm to eliminate environmental and other erroneous contributions to the markers.

3. The method of claims 1 wherein the volatile markers are detected using an artificial olfactory system.

4. The method of claim 1 wherein the detected marker data is processed in an artificial neural network.

5. The method of claim 4 wherein the artificial neural network includes a fuzzy filter system.

6. The method of claim 1 wherein the entity is selected from the group consisting of living humans, other living animals or organisms, and non-living entities.

7. The method of claim 6 wherein the entity is a living human and the volatile markers are characteristic of a disease or other medical condition.

8. The method of claim 7 wherein the disease is selected from the group consisting of diabetes, cancer, mental illness, ulcers, and HIV.

9. The method of claim 6 wherein the entity is food and the volatile markers are characteristic of food degradation.

10. The method of claim 1 wherein the markers are selected from supermarkers which correlate substantially with a single condition, and collective supermarkers which comprise of a set of secondary markers which individually correspond to more than one condition but collectively correspond to a single condition.

11. A method for determining a disease or other medical condition of a person comprising:
selecting a set of volatile markers which are characteristic of the disease or other medical condition and which will be found in the exhaled breath or other gaseous emanation from the person;
non-invasively detecting these volatile markers in the exhaled breath or other gaseous emanation from the person;
processing the detected marker data with an algorithm which intelligently adapts to an individual person.

12. The method in claim 11 wherein the volatile markers are detected using an artificial olfactory system and the detected marker data is processed in an artificial neural network.

13. The method of claim 12 wherein the detected marker data is processed with an algorithm adapted to an individual person by training the neural network with calibration data from the person.

14. The method in claim 11 further comprising further processing the detected marker data with a correction algorithm to eliminate environmental and other erroneous contributions to the markers.

15. The method of claim 14 where the environmental correction of detected markers is performed by fitting a minimum of three measured points to a pre-established wash-out curve for each marker.

16. The method of claim 11 wherein the disease is diabetes and the markers are selected to measure the destruction or deterioration of islet cells.

17. The method of claim 11 wherein the disease is diabetes and the markers are selected to measure the destruction or deterioration of cell membranes by lipid peroxidation or protein oxidation.

18. The method of claim 17 wherein the markers are used to predict a rise in glucose preceding the actual rise in glucose.

19. The method of claim 17 wherein the cell membranes are erythrocyte cell membranes.

20. The method of claim 16 wherein the markers are used to detect an overeating condition.

21. The method of claim 17 where in the markers are selected from the group consisting of: carbon dioxide (CO_2), acetone (CH_3COCH_3), hydrogen peroxide (H_2O_2), ethane (C_2H_6), ethanol, pentane (C_5H_{12} or methylbutane), pentanol, isoprene (C_5H_8, 2-methylbuta-1,3-diene), hexanal ($C_6H_{12}O$ or caproaldehyde or n-caproic aldehyde), propanal (C_3H_6O or propional or propionaldehyde), pentanal ($C_5H_{10}O$ or valeral or valeraldehyde), butanal (C_4H_8O or butyraldehyde), 2-methylpropene(C_4H_8 or isobutene or i-butene), 2-octenal, 2-nonenal, 2-heptenal, 2-hexenal, 2,4-decadienal, 2,4-nonadienal, methyl 2,3-dihydroindene ($C_{10}H_{12}$), dimethylnaphthalene ($C_{12}H_{12}$), alkylbenzene ($C_{15}H_{24}$), n-propylheptane ($C_{10}H_{22}$), n-octadecane ($C_{18}H_{38}$), n-nonadecane ($C_{19}H_{40}$), hexadiene (C_6H_{10}), cresol (C_7H_8O), sabinene ($C_{10}H_{16}$), methyl heptanol ($C_8H_{18}O$), methyl

ethyl pentanol ($C_8H_{18}O$), trimethylpentanol ($C_8H_{18}O$ or ethylhexanol or isooctanol), decanol ($C_{10}H_{22}O$), dodecanol ($C_{12}H_{26}O$), and alkyl dioxolane ($C_6H_{12}O_2$).

22. The method of claim 11 wherein the markers are selected to measure the effect of an increase of free radicals over a normal level wherein the increase of free radicals is related to the disease or other medical condition.

23. Apparatus for detecting the condition of an entity comprising:
a volatile marker detector for non-invasively detecting a set of markers which are characteristic of a condition and which will be found in a gaseous emanation from the entity;
an intelligent processor for processing detected volatile marker data and including an algorithm adapted to the individual entity.

24. The apparatus of claim 23 wherein the volatile marker detector is an artificial olfactory system and the intelligent processor is an artificial neural network.

25. The apparatus of claim 24 wherein the artificial neural network includes fuzzy filters associated with at least one of the input layer and a hidden layer.

26. The apparatus of claim 23 wherein the volatile marker detector is positioned in or connected to a microwave oven.

27. The apparatus of claim 23 further comprising a heater operatively connected to the volatile marker detector to refresh the detector.

28. The apparatus of claim 27 wherein the detector comprises an array of sensors, and the heater is connected to either the array or to individual sensors.

29. An artificial neural network comprising an input layer, an output layer and at least two hidden layers between the input and output layers, each layer comprising a plurality of nodes, wherein the nodes of at least the second hidden layer comprise fuzzy filters.

30. The method of claim 6 wherein the volatile markers are characteristic of *E. coli, H. pylori, Salmonella, Staphylococcus aureus,* or *Bacillus anthracis.*